

CORE

CENTRAL OPERATION OF RESOURCES
FOR EDUCATORS

Educational Service

Educators

K-University

FALL 2003

NEWSLETTER

Celebrating the Centennial of Flight

For more information visit:
<http://www.centennialofflight.gov>

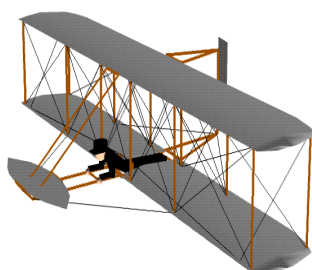


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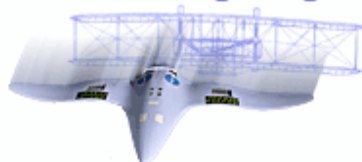
In 2003, America celebrated the 100th anniversary of the Wright Brothers' first flight at Kitty Hawk with a fully controlled, powered aircraft. Their achievement is an inspiration to all inventors, young and old, around the world. Tens of thousands of daily flights at U.S. airports and frequent worldwide travel prove that the airplane has changed our lives dramatically.

We hope NASA's resources will encourage you and your students to celebrate the past 100 years of flight; to rediscover the challenges of flight; and to learn about the people, events, and technology that made flight possible.

Students of all ages will be able to examine how our world has changed as a result of the Wright Brothers' first powered flight on December 17, 1903.

What possibilities will they be able to imagine for the next one hundred years of flight?

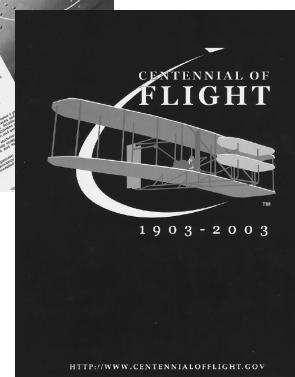
Celebrating Flight



<http://spacelink.nasa.gov/products>



<http://quest.nasa.gov/projects/aero/centennial>



Find materials on-line or ☒ Order

Centennial of Flight VIP Packet
from NASA CORE

Item # 300.1-17P \$ 6.00

CATALOG SUPPLEMENT OF NEW MATERIALS



☒ Order the
CAREERS

Subject Area Module
Item #: 004 \$16.00
from

NASA CORE
440/775-1400

View contents of this module
on-line at <http://core.nasa.gov>



NASA TV

NASA TV provides real-time coverage of Agency activities and missions as well as resource video to the news media, and educational programming to teachers, students and the general public. For more information go to:

<http://www.nasa.gov/multimedia/nasatv/>

The NASA TV Education File broadcasts many of the CORE videos starting at 8:00 a.m. EST and repeats five times daily. For a complete broadcast schedule visit:

<http://spacelink.nasa.gov/education.file>

The NASA TV Education File schedule follows a monthly schedule and is theme based. Multimedia products and Web resources related to each month's theme are available from the "Extra" page Web site at:

<http://spacelink.nasa.gov/extra>

New Materials: Videotapes

CAREERS

Great Achievements in Mechanical Engineering of the 20th Century

Level: Grades 5-8

Item #: 004.0-12V

1/2" VHS

\$15.00

The video investigates, with use of archival photos and video, the development of the automobile, the Apollo moon landing, power generation, agricultural mechanization, the airplane, the integrated circuit, air conditioning and refrigeration, CAD/CAM and CAE technology, bioengineering, and codes and standards. The companion website <http://www.asme.org/education/precollage/achieve/> provides teachers with on-line lesson plans and activities related to each of the ten achievements. Hand-outs allow students to learn about each achievement, and also do a hands-on activity related to it. These lessons have been developed to augment the video, but also serve as stand-alone materials for the middle school classroom. All lesson plans are linked to relevant teaching standards in mathematics, science, and technology, so teachers can easily coordinate activities with curriculum requirements. 23 minutes/2002

EARTH SCIENCE

NASA Science Files™: The Case of the Shaky Quake

Level: Grades 3-5

Item #: 002.3-06V

1/2" VHS

\$16.00

The tree house detectives are concerned about a tremor that they felt while working in the tree house. Unsure if they had just experienced an earthquake, they decide to call a seismologist to find the answer. They soon realize that it isn't that simple. As the detectives begin their research, they stop by to see Dr. D, who provides them with information on the various layers of the Earth and how fossils help scientists discover the Earth's movement. Dr. D also tells them to think "outside of the box" because the answer is not always obvious. Jacob is on vacation in Utah and visits David Whitman at Dinosaur National Monument to gather some important clues and to learn about the continental drift theory and plate tectonics. CLOSED CAPTIONED 60 minutes/2002

Data Slate

Level: Grades 5-12

Item #: 002.2-32V

1/2" VHS

\$15.00

Item #: 400.1-53

CD-ROM

\$ 5.00

DataSlate is a multi-curricular image visualization tool for students. It allows students to easily and quickly maneuver through huge image data sets, overlay and compare images gathered over time, or with different instruments, and observe historical, geographical, geological, and environmental change or to compare images of the same area at different wavelengths. DataSlate program also includes a CD-ROM with 12 sample data sets and 12 sample lesson plans. 17 minutes.

Journeys Through Earth & Space

Level: Grades 5-12

Item #: 002.2-33V

1/2" VHS

\$15.00

Item #: 002.2-33P Video Resource Guide \$ 3.00

This video magazine follows three NASA research teams tackling questions with supercomputers. "Journeys" begins with a short introduction that explains what supercomputers do and how scientists tap their power to recreate the universe mathematically. Researcher interviews mix with scientific imagery and stunning nature footage, that can be downloaded from <http://ct.gsfc.nasa.gov/journeys/> or purchased for \$3.00. 18 minutes CLOSED CAPTIONED

New Materials: Videotapes

HISTORY OF FLIGHT

Earth to Orbit: Now, You've Got the "Wright" Idea

<i>Level: Grades 5-12</i>	<i>Item #: 001.0-15V</i>	<i>1/2" VHS</i>	<i>\$15.00</i>
	<i>Item #: 300.0-41C</i>	<i>Activity Kit</i>	<i>\$58.00</i>

More than one hundred years ago the Wright Brothers used a design process that is still integral to engineering design today. The Centennial of Flight Challenge focuses on the Wright Brothers' design process and their development of the "Flyer". Students are challenged, like the Wright Brothers were, to design a propeller that generates the maximum possible thrust using a small motor and other inexpensive materials. In taking on this challenge students work in teams to design, build, and test small propellers (less than 8 inch diameter) using simple, easily manipulated materials such as heavy paper and small craft sticks. They bend and fold these materials, attach them to a simple test stand, and collect data on their ability to generate thrust. Relationships in forces and motion are explored and tied to history and mathematics. For more information, visit their web site at <http://eto.nasa.gov> 18 minutes/2003

HISTORY OF FLIGHT: CENTENNIAL EDITION Subject Area Value Pack Module

<i>Level: Grade K-12</i>	<i>Item #: 001 C</i>	<i>\$38.00</i>
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Celebrating a Century of Flight Publication
Centennial of Flight VIP Packet
Centennial of Flight CD-ROM
Flight Testing Newton's Laws CD-ROM
Learning to Fly Publication
NASA CONNECT™: The "Wright" Math Videotape
NASA DESTINATION TOMMORROW™ Videotape

Our Subject Area Value Pack Modules include everything you need to teach a unit. Many include videotapes, CD-ROMs, educator guides, slides, and more! Subjects such as careers, earth science, geography, history of flight, life science, mathematics, physics, science & technology, and space science are available. We also have modules specifically for Spanish materials and for the elementary grades. Items in modules are discounted and a free gift is included in each module. For complete descriptions of individual programs visit our website at <http://core.nasa.gov>

NASA CONNECT™

Centennial of Flight Special Edition: Problem Solving: The "Wright" Math

<i>Level: Grades 6-8</i>	<i>Item #: 001.0-14V</i>	<i>1/2" VHS</i>	<i>\$10.00</i>
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NASA CONNECT Series produced by the NASA Langley Research Center's Office of Education. Students will learn about the evolution of flight. They will learn how the Wright Brothers became the first human beings to successfully design, construct and fly an airplane. Students will learn the method the Wright Brothers used in designing their airplane. They will also be introduced to NASA's Morphing Project, a radically new approach to designing aircraft of the future. They will observe NASA researchers using problem-solving techniques to design wings that will change their shape during flight. By conducting hands-on and web activities, students will make connections between NASA research and the mathematics, science and technology they learn in their classrooms. 30 minutes/2002 CLOSED CAPTIONED

To view our catalog in
it's entirety please visit
our website at:

<http://core.nasa.gov>



☒ Order the
HISTORY OF FLIGHT
Subject Area Module
Item #: 001 \$86.00
from
CORE
440/775-1400

View contents of this module
on-line at <http://core.nasa.gov>

New Materials: Videotapes

LIFE SCIENCE

NASA Science Files™: The Case of the Biological Biosphere

Level: Grades 3-5

Item #: 003.1-13V

1/2" VHS

\$16.00

One of the treehouse detectives is about to take a trip to foreign shores and is both excited and concerned. This trip is a chance of a lifetime and he doesn't want to get sick and miss it. Come help the detectives learn about the human body as they discover that no man, not even a kid, is an island. The show deals with viruses, bacteria, cells, infectious disease and its spread, quarantine, immunizations, body systems, the immune system, mucus, skin, vomit and the importance of rest, exercise and proper diet. 60 minutes/2003 CLOSED CAPTIONED



Science in Space: Fundamental Biology on STS-107

Level: Grades 5-College

Item #: 003.1-12V

1/2" VHS

\$16.00

The last half-century of human inquiry into the basics of life, materials, and energy has yielded an astonishing range of answers and capabilities. It also has yielded new questions that require more sophisticated investigations to understand and apply the subtle, elegant workings of the inner universe. Many investigations have been stymied by inescapable effects of Earth's gravity. But the last half-century also saw scientists start using the microgravity of orbit to turn those effects off and thus unmask basic phenomena that play key roles in biology, physics, and chemistry on Earth as well as space. STS-107 is a Shuttle mission dedicated to research investigating human physiology, fire suppression, and other areas of research relevant to people across the globe, hence the theme "Space Research and You". 22 minutes/2003 CLOSED CAPTIONED

LIVING IN SPACE

International Space Station: Expedition 2000

Level: Grades 6-12

Item #: 006.4-23V

1/2" VHS

\$10.00

Students will learn about teamwork between international scientists, engineers and astronauts as they work to make the International Space Station a reality. They'll learn about how studies in microgravity give us new insight on the human body and the world around us. With a diverse panel of top NASA, university and other experts, this live, interactive, ninety-minute program will put you directly in touch with the scientists, engineers and astronauts who are helping to build and use the ISS. Also includes the film clip "When You Gotta Go" by Phil West. 90 minutes/2000



NASA CONNECT™

Festival of Flight Special: Opening Space for Next Generation Explorers

Level: Grades 6-8

Item #: 006.3-21V

1/2" VHS

\$10.00

NASA CONNECT™ Series is produced by the NASA Langley Research Center's Office of Education. In this program, NASA's Space Launch Initiative (SLI) Program will ultimately move the nation from the explorations of the Mercury, Gemini, Apollo, and Space Shuttle missions to a new period of pioneering when people and businesses are more routinely traveling, working, and living in space. 30 minutes/2003 CLOSED CAPTIONED

New Materials: Videotapes

LIVING IN SPACE (continued)

Really Heavy Pants: A Collection of Short Videos About Spacesuits and Working in Space

Level: Grades 3-Adult Item #: 006.3-20V 1/2" VHS \$10.00

These 7 short videos are part of NASA engineer Phil West's presentation "It's Hard to Dance in a Spacesuit," a fun look at the suits and tools astronauts use in space. How Big Will the ISS Become? (0:11) What Does a Vacuum Look Like? (0:23) Astroburger (1:00) Really Heavy Pants (3:38) How Would You Turn A Bolt in Space? (1:00) Martian Farmer (1:00) Mars: What Would You Wear? (3:12) 11 minutes/2003 CLOSED CAPTIONED

MATHEMATICS

NASA CONNECT™: Measurement, Ratios, and Graphing: Who Added the "Micro" to Gravity?

Level: Grades 6-8 Item #: 012.0-27V 1/2" VHS \$ 10.00

Students will learn about microgravity. They will be introduced to combustion science and the importance of fire safety on the International Space Station. Students will also learn how chemistry plays an important role in microgravity research. By conducting hands-on and web activities, students will make connections between NASA research and the mathematics, science and technology they learn in their classrooms. 30 minutes/2002 CLOSED CAPTIONED

SCIENCE AND TECHNOLOGY

NASA CONNECT™: Special Edition: World Space Congress 2002: The New Face of Space

Level: Grades 6-8 Item #: 011.0-08V 1/2" VHS \$10.00

The World Space Congress 2002 is the "meeting of the decade for space professionals." From the discovery of distant planets to medical advancements, from geological exploration to urban planning, from water on Mars to energy sources in developing nations, you'll find it all here. Students will also have an unprecedented look at how advances in space can and do improve life on Earth. 30 minutes/2003 CLOSED CAPTIONED

NASA CONNECT™ 2002-2003 9-Part Video Series

Level: Grades: 6-8 Item #: 099.24 V 1/2" VHS \$48.00

Program 1: Geometry and Algebra: The Future of Flight Equation
 Program 2: Centennial of Flight Special Edition: Problem Solving: The "Wright" Math
 Program 3: Data Analysis and Measurement: Having a Solar Blast
 Program 4: Measurement, Ratios and Graphing: Who Added the "Micro" to Gravity?
 Program 5: Functions and Statistics: Dressed for Space
 Program 6: Special Edition: World Space Congress 2002: New Face of Space
 Program 7: Measurement, Ratios and Graphing: Safety First
 Program 8: Data Analysis and Measurement: Dancing in the Night Sky
 Program 9: Festival of Flight Special: Opening Space for Next Generation Explorers

Each program has 3 components: (1) a 30-minute television broadcast; (2) an interactive web activity; and (3) a lesson guide describing a hands-on activity. 5 hours/2003 CLOSED CAPTIONED.



<http://connect.larc.nasa.gov>

NASA CONNECT is an award-winning series of instructional programs designed to enhance the teaching of math, science, and technology concepts in grades 5-8.

*Don't miss the new
2003-2004 season!*

New programs include:

Virtual Earth

Airs: Thursday, October 16, 2003

Better Health from Space to Earth

Airs: Thursday, November 20, 2003

PSA, The Astronaut's Helper

Airs: Thursday, January 22, 2004

The Venus Transit

Airs: Thursday, March 18, 2004

The "A": Train Express

Airs: Thursday, May 20, 2004

*These new programs will be
available from CORE after the
broadcast date.*



<http://destination.larc.nasa.gov>

NASA's DESTINATION TOMORROW™ VHS

Bringing the Future Into Focus
2000-2001 Series
Item #: 099.35 V \$24.00
SPANISH VERSION
Item #: 099.36 V \$24.00

This is a five part series
condensed onto one
Videotape

NASA's DESTINATION TOMORROW™ DVD

Bringing the Future Into Focus
2000-2001 Series
Item #: 099.35 D \$12.00

This is a four part series
condensed onto one
DVD



The 2003-2004 NASA Science Files™ will begin airing in September 2003. It will include these new programs:

The Case of the Wacky Water Cycle

Airs: Wednesday, October 15, 2003

The Case of the Disappearing Dirt

Airs: Wednesday, December 10, 2003

The Case of the Prize-Winning Plants

Airs: Wednesday, February 18, 2004

The Case of the Radical Ride

Airs: Wednesday, April 14, 2004

<http://scifiles.larc.nasa.gov>

These new programs will be available from CORE after the broadcast date.

New Materials: Videotapes

SCIENCE AND TECHNOLOGY (continued)

NASA's DESTINATION TOMORROW™

Program 7: Bringing the Future Into Focus

Level: Grades 9-Adult Item # 099.35-07V 1/2" VHS \$10.00

This program consists of five exciting segments. In the "Behind the Scenes" segment, viewers will learn about the new weather satellite; in the "Tech Watch" segment, viewers will learn about NASA's commercial invention, the Ventricular Assist Device; meet Israel Taback, Chief Engineer for the Viking Mission in the "Retrospective" segment; see how NASA is making flying safer in the "On the Runway" segment; and viewers find out how virtual reality works in the "How it Works" segment. 30 minutes/2003 CLOSED CAPTIONED

NASA's DESTINATION TOMORROW™

Program 8: Bringing the Future Into Focus

Level: Grades 9-Adult Item # 099.35-08V 1/2" VHS \$10.00

This program consists of five exciting segments. In the "Behind the Scenes" segment, viewers will learn about the Materials ISS Experiment; in the "Tech Watch" segment, viewers will learn about a new catalytic converter; in the "Retrospective" segment viewers will learn about the Transonic Dynamics Tunnel; viewers will see how NASA is making flying safer in the "On the Runway" segment; and viewers find out how lasers work in the "How it Works" segment. 30 minutes/2003 CLOSED CAPTIONED

NASA's DESTINATION TOMORROW™

Program 9: Bringing the Future Into Focus

Level: Grades 9-Adult Item #: 099.35-09V 1/2" VHS \$10.00

This program consists of five exciting segments. In the "Behind the Scenes" segment, viewers will learn about the HELIOS experimental airplane; in the "Tech Watch" segment, viewers will learn about a new breast cancer detection device; in the "Retrospective" segment; viewers will learn about Project Gemini; viewers will see how NASA is making flying quieter in the "On the Runway" segment; and viewers find out how spacesuits work in the "How it Works" segment. 30 minutes/2003 CLOSED CAPTIONED

NASA Science Files™ 2002-2003 4-Part Video Series

Level: Grades 3-5 Item #: 099.50 V 1/2" VHS \$60.00

Program 1: The Case of the Powerful Pulleys

Program 2: The Case of the Mysterious Red Light

Program 3: The Case of the Shaky Quake

Program 4: The Case of the "Wright" Invention

Each program supports the national mathematics, science and technology standards and has three components that include (1) a 60-minute television broadcast; (2) a companion educator's guide; and (3) interactive web-based activities and materials. 4 hours/2002 CLOSED CAPTIONED

New Materials: Videotapes

SCIENCE AND TECHNOLOGY (continued)

NASA DESTINATION TOMORROW™

Program 10: Bringing the Future Into Focus

Level: Grades 9-Adult Item #: 099.35-10V 1/2" VHS \$10.00

This program consists of five exciting segments. In the "Behind the Scenes" segment, viewers will learn about how NASA is studying the Northern Lights; in the "Tech Watch" segment, viewers will learn about a parachute that is attached to a plane, rather than a person; viewers will learn about World War II aircraft in the "Retrospective" segment; viewers see new satellites which may help predict weather better in the "On the Runway" segment; and viewers find out how air traffic control works in the "How it Works" segment. 30 minutes/2003 CLOSED CAPTIONED

SPACE SCIENCE/PLANETARY/MOON

The Idea That Nobody Wanted

Level: Grades 9-Adult Item #: 010.3-05V 1/2" VHS \$16.00

A unique videotape that highlights John Houbolt, an engineer at the NASA Langley Research Center. Hear about the history behind the Moon missions that might not have happened without his perseverance. 30 minutes/1969

SPACE SCIENCE/GENERAL

NASA CONNECT™

Data Analysis and Measurement: Dancing in the Night Sky

Level: Grades 6-8 Item #: 002.4-12V 1/2" VHS \$10.00

NASA CONNECT™ Series is produced by the NASA Langley Research Center's Office of Education. In this program, NASA engineers and researchers use data analysis and measurement to study the auroras, key regions of the Earth's geospace or space environment. 30 minutes/2003 CLOSED CAPTIONED

NASA Science Files™

The Case of the Galactic Vacation

Level: Grades 3-5 Item #: 002.4-13V 1/2" VHS \$16.00

NASA Science Files™ Series is produced by the NASA Langley Research Center's Office of Education. In this program, the tree house detectives go galactic with their latest project. Learn how long it will take to travel to Mars and how the Moon affects the Earth. Come visit Arecibo, the home of the largest radio telescope in the world and help look for intelligent life in the universe. Join the tree house detectives for an "out-of-this-world" vacation as they explore the future of space travel. 60 minutes/2003 CLOSED CAPTIONED

Eisenhower National Clearinghouse

The Eisenhower National Clearinghouse's weekly Focus goes online in August, 2003. The weekly publishing schedule is designed to give teachers a wide variety of topics and timely coverage of important issues in math and science education. New articles will be featured prominently on the ENC home page at <http://www.enc.org> with a direct link to the content.

Some topics that are scheduled include:

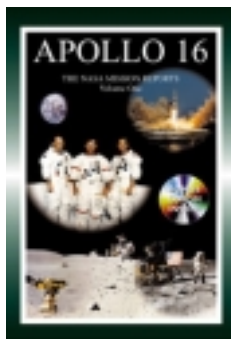
- Focus on NCLB
- Lesson Study
- Evaluating Web Resources
- The Math & Science Initiative
- Literature in the Math Class
- Induction
- NSF-Funded Math Programs

Topics will be of interest to professional development staff as well as individual teachers.

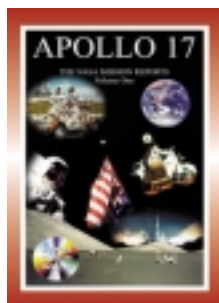
All articles will be accessible as past issues of FOCUS ONLINE and under appropriate topic headings on the ENC web site.

Selected articles from the online publishing schedule will appear in print issues of Focus beginning in the fall of 2003.

<http://www.enc.org>



Item #: 400.2-24 \$19.95



Item #: 400.2-29 \$19.95



Item #: 400.2-26 \$21.95



Item #: 400.2-25 \$29.95

New Materials: Technical Books

***TECHNICAL BOOKS/RESEARCH MATERIAL IS VERY TECHNICAL, EXCELLENT FOR RESEARCH PROJECTS OR THOSE WITH EXTREME INTEREST IN SUBJECT, NOT FOR GENERAL LEVEL USE.**

*Apollo 16: The NASA Mission Reports, Volume One

Level: Grades 9-12/Adult Item #: 400.2-24 Book with CD-ROM \$19.95

NASA chose to send John Young to command the fifth lunar landing mission. The Descartes landing site was chosen because it appeared to be of volcanic origin. For three days Young embarked on the rover, away from the Lunar Module "Orion", through rugged landscapes, in search of the origins of our world. Meanwhile Ken Mattingly shot hundreds of photographs and probed the moon's magnetic field from the Command Module "Casper". The three intrepid explorers and their spacecraft harvested a wealth of new data about the Earth-Moon system in an almost flawless performance of skill and bravado. Compiled here are many important documents about the mission including the complete debriefing in the crew's own words. Windows 2002

*Apollo 17: The NASA Mission Reports, Volume One

Level: Grades 9-12/Adult Item #: 400.2-29 Book with CD-ROM \$19.95

It was in the early morning hours of December 7, 1972 when the last manned Saturn V roared from the launch pad at the Kennedy Space Center. The crew included Harrison "Jack" Schmitt, a fully qualified geologist and astronaut "rookie", CMP Ron Evans, who would be left in lunar orbit to map out the moon in unprecedented detail. Apollo 17 was the culmination of man's greatest program of exploration. An unparalleled triumph of planning and technology flown by a team of professionals with expert precision. This book contains many of the internal NASA documents from this extraordinary voyage made commercially available for the first time. Windows 2002

*Conquest of Space, The

Level: Grades 9-12/Adult Item #: 400.2-26 Book \$21.95

"David Lasser stands as one of the least-known but extraordinary pioneers of spaceflight. The Conquest of Space is a milestone work of spaceflight literature and was state of the art in 1931. No space enthusiast's library is complete without it." Book 2002

*Creating Space – The Story of Space Told Through Models

Level: Grades 9-12/Adult Item #: 400.2-25 Book \$29.95

Creating Space takes us on a journey through the history of the space age, up to the present and beyond. From the advent of the "space race" with the V-2 rocket of World War II to the International Space Station and the future, a complete and detailed chronicling of vehicles is given, side by side with pictures and details of models that depict the multitude of aircraft and spacecraft developed throughout the world. Creating Space is presented in 12 chapters which logically group together the history, the vehicles and the models into logical and meaningful categories. This book will be equally valuable to space enthusiasts, model makers, and space historians. Book 2002

New Materials: Technical Books

***TECHNICAL BOOKS/RESEARCH MATERIAL IS VERY TECHNICAL, EXCELLENT FOR RESEARCH PROJECTS OR THOSE WITH EXTREME INTEREST IN SUBJECT, NOT FOR GENERAL LEVEL USE.**

*Lost Spacecraft – The Search for Liberty Bell 7

Level: Grades 9-12/Adult Item #: 400.2-27 Book with CD-ROM \$28.95

Lost Spacecraft - the Search for Liberty Bell 7 describes the exploration of two unique and dangerous environments - space and underwater - and how the paths of two men, one living and one dead, crossed in the recovery of the Liberty Bell 7 spacecraft. "Lost Spacecraft" focuses on two periods, one beginning in 1959, the other in 1985, interweaving the stories of Project Mercury, Gus Grissom and his ill-fated Mercury flight, on-going developments in deep ocean exploration, and Curt Newport's 14-year obsession to raise the sunken space-age Titanic from the depths of the Atlantic Ocean. However, the prevalent theme running through "Lost Spacecraft" is how simple luck almost rivals technical ability when exploring any deadly environment, whether it be the silent void of low-Earth orbit or the crushing cold of the abyss. WINDOWS 2002

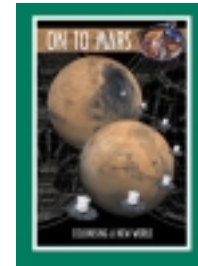


Item #: 400.2-27 \$28.95

*On To Mars – Colonizing a New World

Level: Grades 9-12/Adult Item #: 400.2-23 Book with CD-ROM \$19.95

In 1998, Dr. Robert Zubrin brought into being the Mars Society. People from all walks of life have shown support for the exploration and colonization of Mars. The people of the Mars Society are working to educate and convince the political powers, the industry leaders, and you and me. We all have a stake in this. Many of the diverse specializations and concerns of Mars missions are introduced and explained in this book. Members of the Mars Society share with us their ideas, their knowledge, and their dreams, and encourage us to understand and commit to an important undertaking in the future survival of mankind. WINDOWS 2002



Item #: 400.2-23 \$19.95

*Women Astronauts

Level: Grades 9-12/Adult Item #: 400.2-28 Book with CD-ROM \$21.95

"Women Astronauts" is a must for any girl or young woman who wants to learn about women astronauts, what they do, and how they got to where they are today. Read about every woman who has ever flown into space. This book is packed with exciting stories and interviews with many past and current women astronauts. "Women Astronauts" by Laura S. Woodmansee is a fun, inspirational book for girls and young women and anyone interested in space exploration and what it's like to be an astronaut. Exclusive Interviews with Bonnie Dunbar; Assistant Administrator Johnson Space Center, Ellen Ochoa, Kalpana Chawla, Anna Fisher, Ellen Baker, Linda Godwin, Heidi Piper and Eileen Collins. WINDOWS 2002



Item #: 400.2-28 \$21.95

For complete descriptions of
all Technical Books
Visit our website at:
<http://core.nasa.gov>

New Materials: CD-ROM

EARTH SCIENCE

The Asian Monsoon and Data Assimilation

Level: Grades 9-12

Item #: 400.1-47

CD-ROM

\$5.00

This interactive, student-centered CD-ROM for studying global climate patterns focuses on the Asian monsoon season. Students are guided through an investigative journey studying weather and climate patterns and their effects on the local and world environments. The CD-ROM contains complete teacher, student and resource guides (.pdf) for high school audiences and a Data Visualizer with 4,000 data graphs. A presentation of how the Asian monsoon is studied through Data Assimilation contains 7 QuickTime movies of data and scenes from Asia. Recommended for: High school. For more information, visit their web site at http://dao.gsfc.nasa.gov/sci_highlights/monsoon_cd

Macintosh: Power Macintosh 7100 or greater, 12Mb RAM, 2x CD-ROM and QuickTime 4.0 (included on the CD). Standard PC: Pentium preferred with at least 16Mb of RAM, CD-ROM, QuickTime 4.0 (included on CD) for Windows, for use with Windows 95 and Windows NT.

EOS Science Plan and Global Change Media Directory and MOPPITT Guide

Item #: 400.1-40

Book w/CD-ROM

\$5.00

The Earth Observing System (EOS) Science Plan is the product of leading scientists around the world who are participating in NASA's ESE/EOS program. The purpose of the Plan is to state the concerns and problems facing Earth Science today, and to indicate contributions that will be made toward providing solutions to those problems, primarily through the use of satellite-based observations that will be obtained with EOS satellite and instruments. Within this publication, the reader will find types and quality of data that will be produced from the satellite observations, how they will improve over existing measurement and how the data will be applied to solving the problems described. MAC/WIN

Studying Earth's Environment From Space

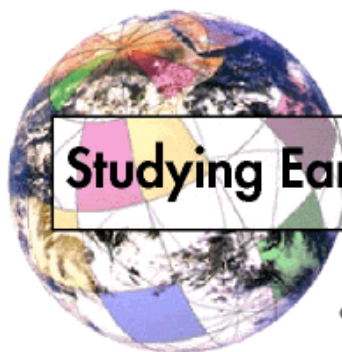
Level: Grades 9-12, Undergraduate

Item #: 400.1-46

CD-ROM

\$5.00

This material consists of four modules: Stratospheric Ozone; Global Land Vegetation; Oceanography; and Polar Sea Ice Processes. The modules are designed to increase the use of satellite data in science classrooms by providing lecture materials in HTML for the classroom (including full-color, printable graphics) that are linked to guided-inquiry computer exercises. The current software package used for the computer exercises is a modified version of the Macintosh platform's NIH-Image. This software, called SEE Image, also has been tested and runs on a PC that is equipped with a Macintosh emulator. Recommended for: High school to undergraduate. For more information, please contact their web site at <http://www.ccpo.odu.edu/SEES/index.html>



Studying Earth's Environment from space

NASA GSFC,
Scientific and Educational Endeavors
Old Dominion University, Dept. of
Ocean, Earth & Atmospheric Sciences
U.S. Coast Guard Academy

New Materials: CD-ROM

EARTH SCIENCE (continued)

United States of America Digital Landsat Mosaics

Level: Grades 5-Adult Item #: 400.1-52 CD-ROM \$6.00

NASA Earth Science Enterprise and the United States Geological Survey (USGS) are pleased to present this 4-CD set of satellite imagery of the fifty states. EarthSatellite Corporation (EarthSat), under contract to NASA through the Scientific Data Purchase project, produced the images. Mr. SID compression algorithm from Lizard Tech, Inc. was used for image compression. NASA developed the viewer to ease navigation of the datasets. The raw imagery was provided by the USGS EROS Data Center. The images can be used to enhance learning throughout many grade levels and various aspects of the curriculum. Using the US Digital Landsat Mosaics, we can increase our understanding of Earth System Science and the effects humans have on the global environment. The Landsat Mosaics were developed primarily from data collected by the Landsat 4 and Landsat 5 satellites as they orbited the Earth ten or more years ago. This historical imagery is a valuable record of the conditions on Earth around the year 1990. Developed by NASA Stennis Space Center and US Geological Survey. WIN/MAC

Exploring Aeronautics
Item #: 400.0-91 \$5.00

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on-line at
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HISTORY OF FLIGHT

NASA Aerospace Technology Education Resource Guide: Centennial of Flight Edition

Level: Grades K-12 Item #: 400.1-44 CD-ROM \$5.00

The NASA Aerospace Technology Education Resource Guide CD-ROM provides K-12 educators an easy and concise introduction to NASA aerospace educational resources including web sites, printed materials, television shows, videos and CD-ROMs. This interactive CD-ROM includes colorful descriptions and links to the best NASA aerospace-related educational web sites, and it contains a library of over 1500 educator guides, lesson plans, posters and more. The materials in the library are ready to print without downloading them from the Internet. Very user-friendly product to introduce students and educators to the Centennial of Flight products. For more information visit the Centennial of Flight Commission's Web Site at <http://www.centennialofflight.gov> WIN/MAC 2002

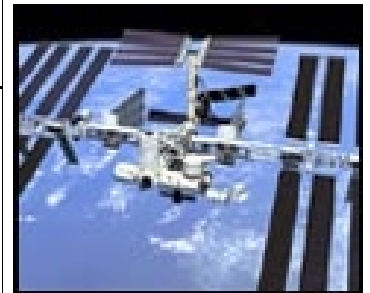
System Requirements: Windows 95+ Pentium II or equivalent w/128 MB RAM. Macintosh 60830 processor or better with minimum 32MB of available RAM. OS 7.0+ - Internet Access.

HUMAN SPACEFLIGHT

Realizing the Dream: An International Space Station Sampler

Item #: 400.1-39 CD-ROM \$5.00

Provides a wide variety of information about this orbiting research facility: our newest star in the sky, the international Space Station. Meet some of the people who designed and are building the ISS, share the excitement of human space exploration and find answers to some of your questions. Information is presented in every day language and includes information from the following web sites: <http://spaceflight.nasa.gov>, <http://education.nasa.gov>, <http://commercial.nasa.gov>. WIN/MAC





Liftoff, Space Simulation
Item #: 400.1-50 \$34.95

- ☒ Order these additional shuttle items from
CORE
440/775-1400



Space Shuttle Patch
Item #: 300.0-05S \$2.00

Space Shuttle Replica w/Patch
Item #: 300.0-24 \$8.00

New Materials: CD-ROM

HUMAN SPACEFLIGHT (continued)

Liftoff, Space Simulation Series – Part I

Level: For All Ages/2002 Item #: 400.1-50 CD-ROM \$34.95

ETI's interactive CD-ROM Space Simulation Series puts users in the driver's seat of the most powerful vehicle ever conceived. Through a series of stunning multimedia presentations and hands-on simulations, users will learn what it takes to be an astronaut, to command the Shuttle, to work, walk and live in space. The user will become an integral part of a large team, choosing to actively participate in a number of different roles to complete missions and assignments. Success will depend on knowledge gained to collaborate in problem solving incorporating real-world NASA procedures and timelines. Liftoff provides the user with general space knowledge, standard nomenclature, a virtual tour of the Space Shuttle and simulator familiarization training of the Ascent (Liftoff to Orbit) portion of a mission. As an astronaut candidate, the user learns the role of Commander (CDR) and interacts with the Pilot to complete a successful launch while dealing with problems and emergencies, including a "non-scheduled" landing in Africa. The product includes a comprehensive Teacher's Guide and Resource Listing for educators. WIN/MAC

Windows: 32MB or more of installed RAM, Intel Pentium processor, Netscape 4.0 or greater, Microsoft Internet Explorer 4.0 or greater, AOL 4.0 or greater, 16-bit color monitor capable of 800 x 600 resolution, Windows 95, 98, 2000, Me, Windows NT4 or Windows XP, Sound card, 8x CD-ROM or faster recommended. Macintosh: 32MB or more of installed RAM, Power Macintosh Power PC processor (G3 or higher recommended), Netscape 4.0 or greater, Microsoft Internet Explorer 4.0 or greater, AOL 4.0 or greater, 16 bit color monitor capable of 800 x 600 resolution, Mac OS 8.1 or later, Sound card, 8x CD-ROM or faster recommended.

PHYSICS

Flight Testing Newton's Laws: The Test Pilot Approach to High School Physics

Level: Grades 9-12 Item #: 400.1-51 CD-ROM \$5.00

Designed to engage high school students in Newtonian physics as it applies to the real world of flight testing aircraft. This highly interactive program is derived from the Flight Testing Newton's Laws educator guides and companion 2-hour videos coproduced by NASA and the National Test Pilots School. Using extensive narration, animation, QuickTime movies and photographs, the instructors from the National Test Pilots School guide students through 10 lessons covering Newton's three laws of motion, complementary areas of trigonometry, vector addition, weight and balance, and resolutions of forces. Many of the demonstrations were photographed in flight as the instructors control aircraft ranging from gliders to supersonic jets. Flight Testing Newton's Laws videotape is also available for \$24.00 CORE Item #012.0-25V. WIN/MAC

Windows 95+; Pentium II or better with 128MB RAM or Macintosh 60830 processor or better w/ minimum 32MB of available RAM; OS 8.6+; QuickTime 5+.

K-4 Publication Set

Item #: 300.1 A \$21.00

Adventures of Echo the Bat
Aeronautics: An Educator's Guide w/Activities
Auroras! Mysterious Lights in the Sky
Exploring the Extreme
Johnny's Airport Adventure
Our Very Own Star: The Sun
Space Food and Nutrition

5-8 Publication Set

Item #: 300.1 B \$21.00

Exploring the Extreme
Life on Earth...and elsewhere?
Microgravity: A Teacher's Guide w/Activities
NASA Student Glovebox
Rockets: A Teacher's Guide w/Activities
Space-Based Astronomy
Space Food and Nutrition

9-12 Publication Set

Item #: 300.1 C \$21.00

Changing Climate: Global Systems Science Student Guide
Discover Earth: Ozone Classroom Materials
Earth As A System
Microgravity: A Teacher's Guide w/Activities
New World View: A Global Systems Science Student Guide
Planetary Geology
Rockets: A Teacher's Guide w/Activities

New Materials: Publications

3, 2, 1..Liftoff: An Educator's Guide With Activities in Science, Mathematics, Technology and Language Arts (guide packaged with space shuttle cookie cutter for completion of one activity and two slides on rockets)

Level: Grades Pre-K-2 Item #: 300.1-09P Packet \$6.00

The construction of the International Space Station (ISS) is one of humankind's most exciting and challenging endeavors. Numerous rocket launches are required to build this orbiting science laboratory. The purpose of this curriculum supplement is to introduce students in the Early Childhood classroom to the International Space Station and the role rockets play in its construction. The guide uses these topics as the basis for interdisciplinary activities for the early learner. The product begins with background information for educators. The activities in this guide are for use individually or as part of a more concentrated space or transportation unit. Educators may choose the sequence of lessons to best fit the requirements of their classrooms. The activities require a minimum of preparation time and use materials that are usually available in the Early Childhood classroom. These activities emphasize hands-on involvement, data collection, observation, exploration, prediction, interpretation, problem solving, and development of language skills. Each activity features objectives, a material list, educator information, procedures, and suggestions for assessment and enrichment. When appropriate, the guide provides illustrations and graphics for activities. Each activity correlates to national science, mathematics, technology, and English language arts standards. Because many lessons are interdisciplinary, matrix charts relating activities to national standards are included.



3,2,1..Liftoff!
Item #: 300.1-09P \$6.00

Amateur Radio in Space: A Teacher's Guide With Activities in Science, Mathematics and Technology

Level: Grades K-4/1998 Item #: 300.1-11P Book \$6.00

This educator's guide contains background information on the Space Amateur Radio EXperiment (SAREX) designed to facilitate communication between astronauts in orbit and students on the ground. Hands-on activities in this guide explore concepts related to amateur radio in the areas of science, mathematics and technology.



Amateur Radio in Space
Item #: 300.1-11 \$6.00

Amazing Space: Education On-Line from the Hubble Space Telescope

Level: Grades 5-8/1997 Item #: 300.1-12P Book \$6.00

Do you want to take your class on a field trip to the edge of the observable universe? If so, join Professor Wifpic and the cadets of the Hubble Academy as they count, classify and analyze objects from the Hubble Deep Field, almost 12 billion light-years away. In this lesson, students will examine the Hubble Deep Field image and simulate the process astronomers use to count, classify and identify the objects in the image. These objects include spatial, elliptical and irregular galaxies, as well as a few individual stars. Contains lithos, educator guide and activities.



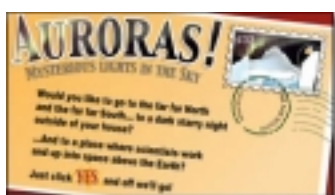
Atlas of the Ocean: The Deep Frontier Teacher's Guide (to accompany National Geographic Atlas of the Ocean Hardcover Book)

Level: Grades 5-12 Item #: 300.1-28P Book \$6.00

This 30-page guide features classroom activities that feature content taken from National Geographic's "Atlas of the Ocean: The Deep Frontier". Each activity in the guide takes the student on an underwater adventure exploring our oceans. Subjects include undersea hot spots, underwater archaeology, bioluminescence, coral reefs, and polar sea exploration. This colorful book of maps, charts and deep sea images also features black line maps that will allow your students to plot their own findings and notes of discovery. Recommended for middle-high school geography education.

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Item # 300.1-38P \$6.00

Centennial of Flight
VIP Packet
Item #: 300.1-17P \$6.00

New Materials: Publications

Atmospheric Detectives: ATLAS 2 Teacher's Guide with Activities

Level: Grades 5-8

Item #: 300.1-29P

Book

\$6.00

Can you imagine doing a science project in space? This is the challenging and exciting situation that researchers experience in Spacelab, the laboratory carried inside the Shuttle. Here, hundreds of kilometers above Earth's surface, the crews of the ATLAS missions scan, probe and measure concentrations of chemicals and water vapor in Earth's protective bubble. Because the health of the atmosphere is of vital importance to all Earth's inhabitants, everyone should be part of this investigation. You can be active participants in exciting and vital activities; recycling and practicing other conservation methods and gathering information to learn more about how you can keep our atmosphere healthy now, as students and in the future as informed citizens, scientists, technicians and mathematicians.

Auroras! Mysterious Lights in the Sky

Level: Grades K-4/2002

Item #: 300.1-38P

Book

\$6.00

Wonderful color book that tells the story of Auroras! The mysterious lights in the sky. Would you like to go to the far, far North and the far, far South to a dark, starry night outside of your house? And to a place where scientists work, and up into space above the Earth? Just say YES and off we'll go. Great book for elementary students. Includes science facts for teachers and parents. Set includes 5 books for classroom use.

Capturing a Whisper From Space

Level: Grades 6-8/2003

Item #: 300.1-40P

Folded Poster

\$6.00

A folded poster of the worldwide system of sensitive antennas that communicate with NASA's interplanetary spacecraft. The Deep Space Network is made up of complexes of antennas in three locations on the globe: Goldstone, California; Canberra, Australia; and Madrid, Spain. Includes careers in space and curriculum activities on the reverse side of the poster.

Centennial of Flight VIP Packet

Level: Grades 5-12/2003

Item #: 300.1-17P

Packet

\$6.00

The Centennial of Flight VIP packet will include the following materials: Introductory Letter; An Educator's Electronic Toolkit; 4 Bookmarks: Centennial of Flight Bookmark, NASA Education Bookmark, Designing the 21st Century Aerospace Vehicle Bookmark, Earth to Orbit Bookmark; Folded posters: The 1902 Glider: How the Problem of Control was Solved Educational Wallsheet that explains the history of the first flight; Centennial of Flight Timeline Poster; 32-Page Airline Brochure, describes the story and influence of flight; and the book Celebrating a Century of Flight which recounts the milestones of flight in the past century. Includes significant events from earlier periods. Beginning with 3500 B.C. with the King Etena of Babylonia, flying on an eagle's back through the year 2000 and the first crew of the International Space Station. Book also includes activities and on-line resources for the subject area.

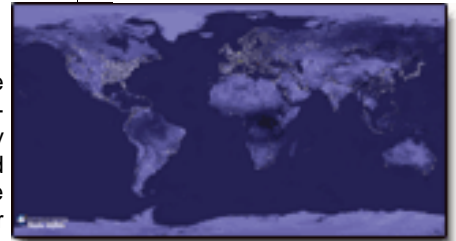
PLEASE NOTE: Items in this packet may vary, most are available on-line at <http://spacelink.nasa.gov/products>

New Materials: Publications

City Night Lights Poster

Level: Grades 9-Adult/2002 Item #: 300.1-18P Poster \$6.00

The student will be able to interpret Earth System Science satellite imagery and explain the relationship between urban development, geography and the global eco system. The student will be able to apply knowledge of satellite urban imagery to additional interdisciplinary learning activities within science, math, geography, social studies and technology. A world atlas map is recommended to be used with this learning tool. This wonderful poster of the world shows population and energy usage. Includes information on the back of the poster from our Mission Geography program. Excellent for framing.

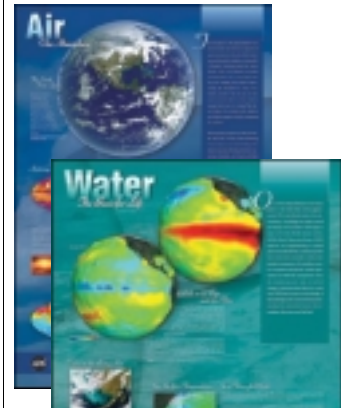


City Night Lights Poster
Item #: 300.1-18P \$6.00

Changing Climate: Global Systems Science Student Guide

Level: Grades 9-12/2000 Item #: 300.1-30P Book \$6.00

Changing Climate addresses the controversial question of how human activities may be changing Earth's climate. It takes students on a "field trip" to Mauna Loa Observatory where they see how scientists have measured carbon dioxide in the Earth's atmosphere since 1957. They graph and interpret data from Mauna Loa and other observatories which led to the prediction, in 1988, that changes in our atmosphere will cause the entire globe to gradually warm up. They also measure carbon dioxide in the laboratory to find out how much is contained in a sample of human breath and car exhaust. The Guide goes on to show how the discoveries at Mauna Loa have been challenged by other scientists in the early 1990's, and discusses the consensus of opinion about global climate change that finally emerged in 1995. The guide identifies scientific questions which still remain unanswered, and involves students in thinking about the economic, political, and ethical implications of regulating human activities to reduce the likelihood of global climate change.



Discover Earth: Ozone Classroom Materials for Precollege Teachers

Level: Grades 5-12/2002 Item #: 300.1-19P Book \$6.00

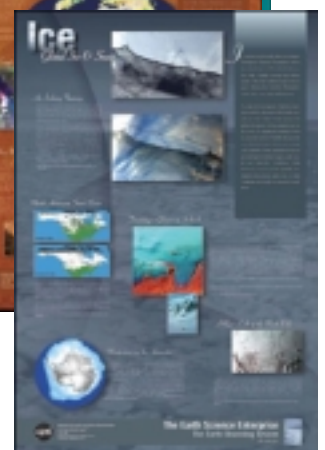
Discover Earth is a NASA-sponsored project for teachers of grades 5-12, designed to: enhance understanding of the Earth as an integrated system, enhance the interdisciplinary approach to science instruction, and provide classroom materials that focus on those goals. The Discover Earth classroom materials focus on the Earth system and key issues of global climate change including topics such as the greenhouse effect, clouds and Earth's radiation balance, surface hydrology and land cover, and volcanoes and climate change.



Earth Observing System 4-Poster Set: Air, Land, Water, Ice

Level: Grades 5-Adult Item #: 300.1-42P Folded Posters \$6.00

Explore recent images and research results from NASA Earth science missions with these informative, eye-catching posters. Each poster takes a specific topic (Air, Land, Water, and Ice) and explains what NASA scientists are doing to understand that topic. Colorful and instructional satellite images, graphs, and pictures complement the fact-filled information, making the posters ideal for the classroom. The posters are also available on-line at http://eospso.gsfc.nasa.gov/eos_homepage/for_educators/eos_posters/index.php



EOS 4-Poster Set
Item #: 300.1-42P \$6.00

New Materials: Publications

GODDARD SPACE FLIGHT CENTER THE EARTH OBSERVING SYSTEM PROJECT SCIENCE OFFICE

Learn more about the Earth
Observing System at:
<http://eospsso.gsfc.nasa.gov>



Earth and Mars
Item #: 300.1-37P \$6.00

EOSDIS From Photons to Tools for Farming, Water Resources Poster

Level: Grades 5-12/1998

Item #: 300.1-20P

Poster

\$6.00

The Earth Observing System Data and Information System is an integral part of NASA's Earth Observing System (EOS). EOS, in turn, is a major component of NASA's Earth Science Enterprise. EOSDIS is the robust distributed system that processes, archives, and manages Earth Science satellite and field data, and distributes this data to a diverse global user community. Over 700 atmospheric, oceanographic and land process studies, as well as global biosphere disciplines. Most of these data products are well suited for long-term global climate studies, and many are suitable for regional small-scale applications. All data products are fully supported with documentation and technical user support. Poster shows an Earth image, synthesized from four remotely sensed data layers: visible light reflection over land, fires over land, aerosols over the oceans, and infrared cloud images from four geostationary satellites.

Earth and Mars: As Different As They Are Alike

2002

Item #: 300.1-37P

Folded Poster

\$6.00

Interest in Mars, the fourth planet from the Sun, began long before people were able to send spacecraft to the Red Planet. Even early astronomers were able to see Mars' brightness and position changes in the sky. With the invention of powerful telescopes, scientists were able to see the surface of Mars for the first time. Today, we send robotic missions to Mars to study its surface. These missions have shown us that Mars' solid surface is much like that of Earth. Mars missions will launch about every two years, to gain a better understanding of Mars' geologic history and search for evidence of past or present life. Attention Teachers: This wallsheet presents summaries of classroom-appropriate activities to help students grasp basic concepts about Earth and Mars and their place in the Solar System. The full lesson plans with student pages are available online at <http://mars.jpl.nasa.gov/classroom/teachers.html>. Mars images can be found at <http://photojournal.jpl.nasa.gov> and <http://mars.jpl.nasa.gov/gallery/index.html>. Most of the Mars images on this poster were taken by the Mars Orbiter Camera (MOC) on the Mars Global Surveyor (MGS) spacecraft, and can be found at <http://www.msos.com>.

Earth As A System

2000

Item #: 300.1-35P

Poster

\$6.00

This classroom component is a result of the Discover Earth workshop and translates the educators' research experience and workshop science content into materials that can be broadly shared and used with colleagues worldwide. The authors encourage the use of the Discover Earth materials by providing substantial background information, linking the classroom activities directly with daily life and ensuring that the activities respond to national science standards.

Earth Observing System

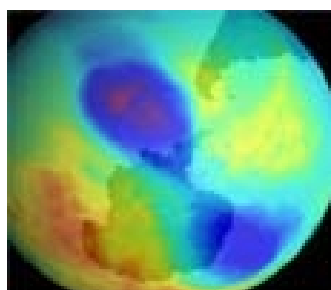
1999

Item #: 300.1-34P

Folded Poster

\$6.00

This poster highlights images of the Earth, including the Pacific Ocean using sea surface height measurements derived from the U.S. French TOPEX/POSEIDON satellite. There is also a "false color" view of the Earth, produced using visible and infrared data from the NOAA GOES-8 Satellite. White areas indicate cloud patterns; bodies of water in blue; and land masses are green to tan indicating varying amounts of vegetation. Additionally, on the back of the poster, flights are listed by year with their objectives and applications from 1997 through 2003.



Scientists say the hole in Earth's protective layer is smaller than in recent years and has also split in two (the dark areas on the image).

New Materials: Publications

Electromagnetic Spectrum

2002 Item #: 300.1-41P Folded Poster \$6.00

The light that we see with our eyes or visible light represents only a small portion of the electromagnetic spectrum. Developing the technology to detect and use other portions of the electromagnetic spectrum, the "invisible" light that our eyes cannot see has had a tremendous impact on our daily lives. When you listen to a radio, heat your food in a microwave oven, use a remote control, or have an X-ray taken, you are using "invisible" light. In astronomy, scientists use the properties of light to learn about celestial objects that are too far away to visit. Each portion of the electromagnetic spectrum provides unique clues about the nature of our universe. The mission and research programs in NASA's Astronomical Search for Origins program use innovative technologies to observe the universe at a variety of wavelengths (ultraviolet, visible and infrared) in search of the answer to two enduring human questions: Where did we come from? Are we alone?



Exploring Earth From Space
Item #: 300.1-36P \$6.00

Exploring Earth From Space

Level: Grades 5-12/2002 Item #: 300.1-36P Litho Set \$6.00

Shuttle astronauts and the ISS EarthKAM program provide photos of our planet from the unique perspective of Earth orbit. This resource can enhance students' studies of Earth and space science, geography, social studies, mathematics, and educational technologies. The set contains an educators' guide, student information and worksheets, and several Earth photos taken from the Space Shuttle. Includes 14 lithos: ISS EarthKAM Photography; Earth Features Seen from Space; Analusia, Spain; Buenos Aires, Argentina; Cloud Patterns; Colorado River; Creative Agriculture in Response to Limited Water; Ganges River Delta; Gazankulu Homeland, South Africa; Nile River Delta; Northeast Coast of Australia; Rio Salado, Argentina; San Jose, California; and the Tibetan Plateau.

Exploring the Extreme Guide and Poster Set

Level: Grades K-8/2003 Item #: 300.1-43P Book/Poster \$6.00

Presents the basic science of aeronautics by emphasizing hands-on involvement, prediction, data collections and interpretation, teamwork and problem solving. The guide contains background information about aeronautical research that can help students learn how airplanes fly. With some simple and inexpensive materials, you can have an exciting and productive unit for students that incorporates science, mathematics and technology education. A poster is included with the guide.



Exploring the Extreme
Item #: 300.1-43P \$6.00

From the Top of the World to the Bottom of the Food Web Poster

Level: Grades K-12/2002 Item #: 300.1-25P Folded Poster \$6.00

NASA's ocean color satellite instruments are more sensitive than the human eye, surveying our global oceans in a few hours. But what are they sensing: Plants? Animals? Something else? Why does ocean color vary in time and place? Can we detect whether microscopic marine organisms are potentially harmful? Discover more about the connections between marine ecology, light's behavior in ocean water and satellite observations. The back of the poster includes activities and web site referrals for more information.

For activities and web site referrals visit:
www.bigelow.org/foodweb



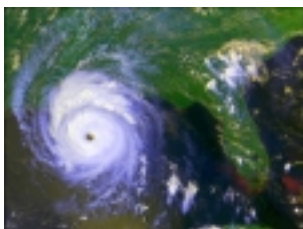


Image taken on August 25, 1992 by NOAA GOES-7 of the Americas and Hurricane Andrew.



Learning to Fly
Item #: 300.1-39P \$6.00

New Materials: Publications

Greenhouse Effect/Earth's Energy Balance

Level: Grades 9-12/1997 Item #: 300.1-31P Brochure \$6.00

The "greenhouse effect" is the warming of climate that results when the atmosphere traps heat radiating from Earth's surface. Certain gases in the atmosphere resemble glass in a greenhouse, allowing sunlight to pass in to the "greenhouse", but blocking Earth's heat from escaping into space. Earth's energy balance is also discussed in this tri-fold brochure. Packaged to include 10 brochures.

Hurricane Andrew Poster

Level: Grades 9-12/1997 Item #: 300.1-22P Poster \$6.00

Wonderful four-color poster of Hurricane Andrew. Hurricanes are large weather systems with strong winds rotating around a calm center, the eye. Most hurricanes that affect the continental United States form in tropical waters near the equator. A hurricane starts as a tropical storm that gains heat energy and moisture as it drifts northward over the warm waters, such as those of the Caribbean Sea or the Gulf Stream. When its sustained winds reach 74 mph, the storm is classified as a hurricane. A hurricane is fed by warm ocean waters, so once it starts to cross land, deprived of heat and energy and dragged apart by friction, the storm dissipates, but often not until it has caused massive destruction to people and property. You and your students can learn interesting facts from the information on the back of the poster: Highs and Lows of Forecasting, The Scale of a Storm, Storm Surge and Power of a Hurricane.

Learning to Fly: The Wright Brothers' Adventure

Level: Grades 6-9/2003 Item #: 300.1-39P Book \$6.00

This NASA educator guide has excellent background information about Wilbur and Orville Wright. The guide contains student activity pages and templates for building the 1900, 1901, and 1902 Gliders and the 1903 Flyer.

Life on Earth...and elsewhere?

Level: Grades 5-10/2000 Item #: 300.1-24P Book \$6.00

Astrobiology is an interdisciplinary field. It provides a relevant, meaningful context for students to explore key concepts in biology, chemistry, physics, mathematics and Earth and space science. This educator resource guide provides opportunities for students in grades 5-10 to master fundamental science concepts and develop inquiry skills. The hands-on activities introduce students to core ideas in astrobiology by examining five key questions: What is life? What does life require? Which planets and moons might be habitable? How do Earth's extremophiles support the idea of extraterrestrial life? What are the possibilities for life elsewhere in our solar system?

Looking at Earth From Space: Glossary of Terms

Level: Grades 5-12/1994 Item #: 300.1-33P Book \$6.00

Materials have been developed to familiarize educators with global change issues and to enhance classroom studies using satellite images. In this book, you will find a glossary of concepts and terms relevant to Earth science, remote sensing and direct readout.

New Materials: Publications

Microgravity: A Teacher's Guide With Activities in Science, Mathematics and Technology

Level: Grades 5-12/1997 Item #: 300.1-13P Book \$6.00

This educator guide contains excellent background information accompanied by classroom activities that enable students to experiment with the forces and processes microgravity scientists are investigating today.

New World View: Global Systems Science Student Guide, A

Level: Grades 9-12/1999 Item #: 300.1-21P Book \$6.00

Global change. Sustainability. Integrated science. How humans impact our global environment. These are core ideas of Global Systems Science-an integrated science course for high school students. A New World View is the introductory volume in this series. Global systems science is a new field of study about the interactions between Earth's natural systems and human activities. The people who study global systems science draw on methods and theories of many different fields-from chemistry and biology to economics and politics-in order to predict how today's actions are likely to affect the world of tomorrow-our world and our children's world.

Our Very Own Star: The Sun Packaged Set

Level: Grades K-4/2002 Item #: 300.1-14P Packet \$6.00

This easy-to-read book is designed for students in grades K-4. Read about solar flares and sunspots and why scientists study the sun. Also includes: Nuestra Propia Estrella el Sol - This is the Spanish version of the easy-to-read book Our Very Own Star: the Sun. Designed for students in grades K-4, it has information about solar flares and sunspots and why scientists study the sun. Can also be used in a basic Spanish class.

Ozone/Nimbus-7 Total Ozone Mapping Spectrometer Poster

Level: Grades 9-12 Item #: 300.1-23P Folded Poster \$6.00

The images on the poster show measured total ozone levels over the Earth for each month from November 1978 to April 1993. The measurements were taken by NASA's Total Ozone Mapping Spectrometer (TOMS) aboard the Nimbus-7 satellite. The color scale at the bottom shows the amount (sum of all the ozone in a vertical column through the atmosphere) in Dobson units. Normal to high ozone levels are indicated by the colors green, yellow and red, respectively. Blue and purple indicate low to very low ozone concentrations. The individual images have been rotated each month in order to show the polar region in the Spring of each hemisphere. This is the season when the most dramatic ozone depletion occurs. Includes 9-panels of information on the back of the poster with information and classroom activities.

Planetary Geology: A Teacher's Guide with Activities in Physical and Earth Science

Level: Grades 5-College Item #: 300.1-44P Book \$6.00

Many Earth science courses include an introduction to the solar system. The challenge of Earth science is to understand the natural processes that shape our planet, Earth, and all objects in the solar system. But there are more compelling arguments for including planetary science in the classroom. Those arguments inspired NASA to conduct short courses in planetary geology for earth science teachers at the secondary and college levels. This book is an outgrowth of these short courses. The educator guide features exercises grouped into five units: 1) introduction to geologic processes, 2) impact cratering activities, 3) planetary atmosphere, 4) planetary surfaces, and 5) geologic mapping.

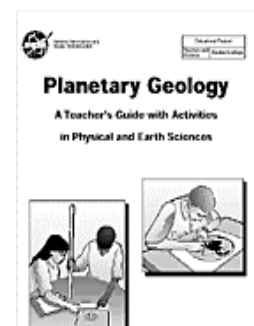
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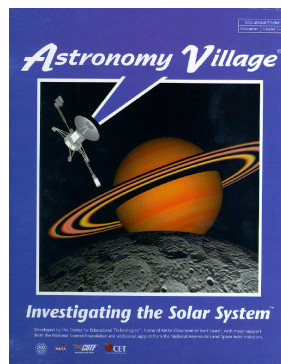
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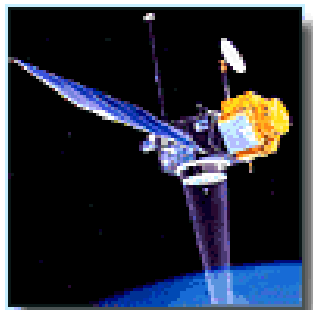


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Learn how the U.S. and France have joined together to use data from the TOPEX/POSEIDON satellite to study ocean currents, speeds, directions and temperatures.

New Materials: Publications

Space-Based Astronomy: Activities for Science, Mathematics and Technology Education

Level: Grades 5-8/2001

Item #: 300.1-15P

Book

\$6.00

This NASA educator guide tells the story of why it is important to observe celestial objects from outer space and how to study the entire electromagnetic spectrum. This curriculum guide uses hands-on activities to help students and teachers understand the significance of space-based astronomy-astronomical observations made from outer space. It is not intended to serve as a curriculum. Instead, teachers should select activities from this guide that support and extend existing study. The guide contains few of the traditional activities found in many astronomy guides such as constellation studies, lunar phases and planetary orbits. It tells, rather, the story of why it is important to observe celestial objects from outer space and how to study the entire electromagnetic spectrum. Teachers are encouraged to adapt these activities for the particular needs of their students. When selected activities from this guide are used in conjunction with traditional astronomy curricula, students benefit from a more complete experience.

Storms from the Sun

Level: Grades 5-12/2002

Item #: 300.1-27P

Folded Poster

\$6.00

This folded poster of Storms from the Sun: Coronal Mass Ejections Light Up the Sky. Millions of amps surge through our atmosphere and make bright Northern lights. On the back of the 4-color poster are eight panels with material on the following topics: Bubble, Bubble, Toil and Trouble; Storm Front; Blackouts, Burnouts, and Bummers; Measure the Motion of a Coronal Mass Ejection; Hurricane Sol; Seeing the Invisible; Make Your Own Sun-Earth Connections and NASA Resources for Educators. The poster is also available on-line at <http://spacelink.nasa.gov/products>

Teachers and Students Investigating Plants in Space: A Teacher's Guide with Activities for Life Sciences

Level: Grades 5-12/1997

Item #: 300.1-16P

Book

\$6.00

Students will grow AstroPlants through a life cycle, and in the process will become well acquainted with germination, orientation, growth, flowering, pollination, fertilization, embryogenesis and seed development. The lessons in this guide can be used to engage students in the fascination of space biology through plant investigations long after the Space Shuttle mission has entered the history books. It is NASA's goal that the information in these activities will motivate both teachers and students to become active and involved participants in Space Life Sciences, now and in the future.

TOPEX/POSEIDON: Revealing Our Ocean Planet

Level: Grades 9-12/1997

Item #: 300.1-32P

Book

\$6.00

Viewed from space, the oceans give Earth its "blue marble" appearance, setting our planet apart from all others in the solar system. This cloak of life-giving water that covers more than 70 percent of Earth's surface area controls our planet's climate. Studying the oceans, scientists are using TOPEX/POSEIDON satellite data to learn how heat from the Sun is transported around the globe by ocean circulation patterns. Researchers now have an improved understanding of the role of the oceans in controlling seasonal variations and longer term climate changes. TOPEX/POSEIDON data are also used for operational purposes, such as monitoring eddies and their impact on human activities and marine life. This 4-color booklet highlights: climate; seasons; wind, waves and weather; eddies; el nino; kelvin and rossby waves; the oceans from space and the satellite.



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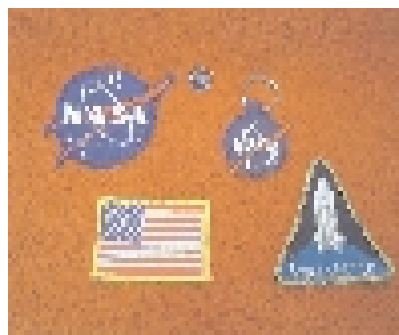
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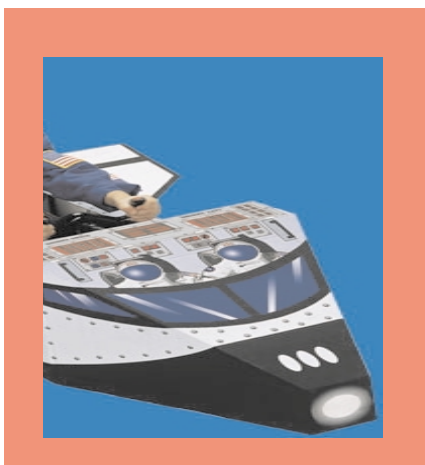
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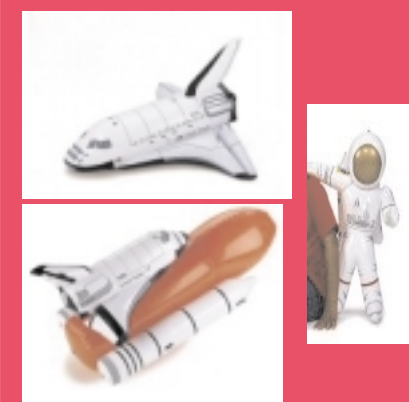
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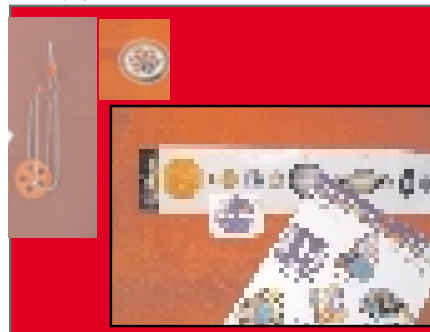
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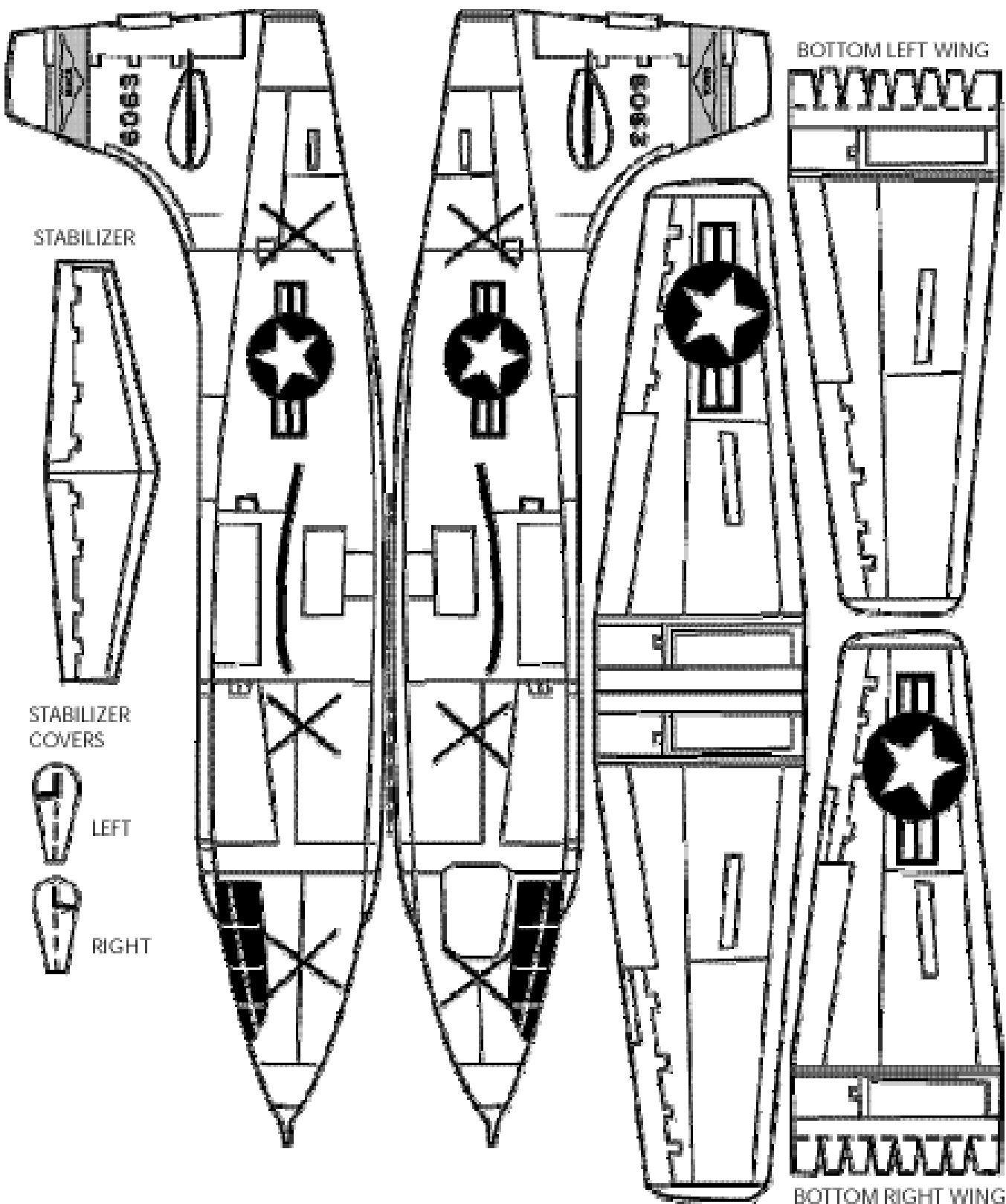


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Classroom Activity

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Classroom Activity

X-1 Paper Glider Kit

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Cut on outer solid lines. Fold on dashed lines. Score all fold lines for accurate folds. Check the parts for fit and alignment before gluing. Cut slots for the wing and horizontal stabilizer. When cutting the fuselage, leave the left and right halves together at the fold line. Glue the halves together and cut out the fold line even with the fuselage.

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